ASHTON HATCHERY ANNUAL REPORT

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INTRODUCTION

Ashton Hatchery is located in Fremont County, Idaho, approximately two miles (3.2 km) southwest of the small community of Ashton. Constructed in 1920, Ashton Hatchery serves as a "specialty station" rearing eight species of trout and salmon, including rainbow, cutthroat, brook trout, brown trout, golden trout, grayling, kokanee, and atlantic salmon.

The majority of fish produced at Ashton are fry and fingerlings (one to six inches), distributed throughout Idaho as part of various put-grow-and-take management programs. Catchable size (nine to ten inches) trout are also reared at Ashton and distributed locally in waters managed on a put-and-take basis.

HATCHERY IMPROVEMENTS

Hatchery improvements included repairing the base of the quanset storage building and installing a new garage door on the hatchery building. New linoleum was placed in both residences and new kitchen countertops placed in Residence Two. The interior of Residence One was painted, and new visitor parking signs were installed. Grader racks were built for fingerlings and catchables, and an overhead hoist and support frame were constructed for the 300-gallon stocking tank. Willows were cut down over the spring pond so the engineering crew could work on the springs. A new water collection line was buried to remove surface water, and new gravel was placed over the springs.

Numerous capital outlay items were purchased to aid with fish culture. Four, 1-horsepower aerators were purchased to restore dissolved oxygen levels in the raceways during the spring months of heavy pond loadings. A hand-held dissolved oxygen meter was purchased to monitor oxygen levels in the raceways and a new fish farming kit will monitor the chemical aspects of water quality. Demand feeders were purchased to save labor on fish feeding and a coldwater pressure-washer was purchased to facilitate hatchery cleanup duties. A new computer desk was purchased. In addition, a new morphaline pump was purchased that should help attract kokanee back to the Moose Creek trap.

FISH CULTURE TECHNIQUES

Several changes were made in fish culture techniques. Fry and fingerlings that used to be hand-fed were switched to automatic fry feeders that dribble feed into the raceways 8 to 12 hours per day. Human disturbance was thereby minimized, and feed conversions improved in 9 of 11 lots reared.

Only catchables were hand-fed, and next year, demand feeders will be used on these fish. Waste-settling areas were created in the back 15% of the smaller outside raceways, and served to settle out fish waste for removal before it floated back through the lower fish.

Aerators were installed in April on the outside raceways to alleviate low dissolved oxygen problems and removed in July after many of the fish were stocked. Lights over the nursery vats were set at a moderate intensity and growth rates maintained when the fish were moved outside by the use of automatic fry feeders and covers on the small raceways.

All fish, with the exception of grayling, were initially fed Bio-Diet because of the size uniformity and performance of the feed. When fish reached 500/pound, they were switched to a lower cost Rangen's soft-moist feed. Swimup grayling were started on Bio-Kyowa B-400 fry feed because of their small size, and then switched to Bio-Diet after several weeks. Catchables and holdover rainbows are switched to a less expensive dry diet when they are five inches long, while all other species remain on soft-moist feed until they are planted.

FISH PRODUCTION

A total of 1,730,718 fish (43,886 pounds) were produced at Ashton Hatchery this year, consisting of 1,619,333 fingerlings (15,065 pounds) and 111,385 catchables (28,821 pounds). The total number of fish produced was up from last year, and the majority of fish requests were met or exceeded (Table 1).

All of the fish reared at Ashton (except kokanee) were received as eyed eggs from other hatcheries (Table 2). Kokanee were spawned at Moose Creek and the green eggs transferred back to Ashton for incubation and rearing. Ashton produced enough rainbow catchables to meet hatchery production goals, but not enough to fulfill all regional stocking requests. Therefore, 8,937 rainbow catchables (3,516 pounds) were transferred in from American Falls Hatchery for redistribution by Ashton Hatchery personnel (Table 3).

A total of 43,574 pounds of feed were used to produce 43,886 pounds of gain, for an average conversion of .99:1. Production costs (excluding capital outlay) totaled $132,100, with $15,585.65 spent on fish feed and the remaining $116,514.35 spent on general hatchery operations and personnel costs. Average cost per pound of fish produced was $3.01 (Table 4).

FISH HEALTH

Department personnel from the Eagle Fish Health Laboratory conducted fish health inspections throughout the year (Table 5). Fish were tested for viral, bacterial, and protozoan pathogens, but Ichthyopthirius in Temiscamie strain brook trout was the only pathogen diagnosed. Brook trout mortalities decreased after a 21-day treatment of oxytetracycline, and no further problems developed. Outbreaks of bacterial gill disease occurred in virtually every species, but treatments with Chloramine-T proved successful in alleviating the problems as they arose.

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Table 1. Fish requested and produced, Ashton Hatchery 1989-90.

SPECIES	**SIZE**	NO. REQUEST	NO. PRODUCED	LBS. PRODUCED	% **GOAL**
			Fingerlings		
RA	2-3"	200,000	211,222	3,017	106%
K1	3-4"	100,000	159,356	1,015	159%
K1-2	3-4"				
BN	3-4"	71,000	83,390	693	117%
BK-C	3-4"	113,000	164,571	3,083	146%
BK-N					
C3	2-4"	215,000	301,522	1,208	140%
KE	1-2"	300,000	329,850	3,365	110%
KE *	3-4"	300,000	302,259 *	159	
GR	1-2"	23,000	27,529	23	120%
GN	1-2"	8,750	18,793	43	215%
GN *	1-2"	600	979 *	3	
AS	5-6"	20,000	19,862	2,457	99%
SUBTOTALS		1,351,350	1,619,333	15,065	120%
			Catchables		
R1-W	8-10	55,000	46,939	12,869	85%
RA *	8-10	58,000	64,446 *	15,952	
SUBTOTALS		113,000	111,385	28,821	
TOTALS			1,730,718	43,886	

* Fish on hand for 1991 stocking.

Table 2. Fish or eggs received and survival to stocking, Ashton Hatchery 1989-90 .

SPECIES	STRAIN/SOURCE	DATE RCV'D	NO. RCV'D	NO. STOCKED	% SURV.
R1-1-9W	WYO.-DANIEL	10/89*	54,335	46,939	86.4%
AS-1-9	MAINE	10/89*	23,697	19,862	83.8%
GN-1-9	WYO.-DUBOIS	10/89*	1,088	1,003	92.2%
BK-N	HENRYS LAKE	12/89	65,172	60,490	92.8%
BK-C	HENRYS LAKE	12/89	109,450	104,081	95.1%
BN	WYO/SODA LK.	10/89	94,872	83,390	87.9%
K1	SKANES	1/90	166,048	159,356	95.9%
RA	ENNIS NFH	11/89	281,205	185,203 +64,465**	88.8%
GN	WYO.-DANIEL	7/90	20,175	17,790	88.2%
GN-2	MT./SYLVAN	7/90	1,475	1,023**	69.5%
GR	WYO.-DUBOIS	5/90	133,350	27,529	20.6%
KE	MOOSE CR./ DEADWOOD	8/89	502,881	329,850	65.6%
C3	HENRYS LAKE	4/90	413,405	301,522	72.9%
TOTAL			1,867,153	1,402,503	75.1%

* on hand beginning of fish year
** on hand at end of fish year

ASHTABLS

Table 3. Total fish stocked, Ashton Hatchery, 1989-90.

Code	Species	Size (in)	Number	Pounds
RA-1-0	Arlee RB	3.3	211,222	3,017
R1-1-9W	Wyoming RB	9.2	46,939	14,741.8
KE-1-0	Kokanee	3.1	329,850	3,365
KI-1-0	Kamloop	2.4	119,907	650
K1-2-0	Kamloop	2.8	39,449	364.5
BN-1-0	Brown Trout	2.8	83,390	692.6
GR-1-0	Grayling	1.4	27,529	23.1
BK-1-ON	Nat Bks	3.5	60,490	948.1
BK-1-OC	Tem Bks	3.8	104,081	2,135
AS-1-9	Atlantic	7.2	19,862	2,600
GN-1-9	Golden	4.6	1,003	39.7
GN-1-0	Golden	0.9	17,790	3.6
C3-1-0	Cutthroat	2.2	301,522	1,207.6
BN*	Brn/Wyoming	2.6	8,850	55
R5*	Rb/Ennis	8.0	12,000	4,374
K1*	Am. Falls	9.9	8,937	3,516
R1/R5*	Rb/Ennis	20.0	1,185	9,463
Totals			1,392,736	47,196

Table 4. Ashton Hatchery production summary.

Strain	Fish Produced Numbers	Pounds
RA-1-9 catchables	46,936	12,869
RA-1-0 catchables	64,446	15,952
	111,385	
All fingerlings	1,619,333	
Totals	1,730,718	43,886

Feed Conversion

Pounds fed	Feed Cost	Pounds produced	Conversion
43,574	$15,585.65	43,886	.99:1

Cost

Total cost	Cost per 1000 fish	Cost per pound
$132,100	$76.30	$3.01

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Table 5. Pathology test results, Ashton Hatchery 1990.

Species/ Strain	Date (90)	VH	VP	VE	BK	BF	BR	BC	PX	PW	PC	PI
Brook (BkN)	3-28	-	-									
Atlantic Salmon (AS)	3-28	-	-	-	-	-	-	-		-		
Brook (BkT)	5-1	-	-			-	-	-				+
Kokanee (KeM)	9-4	-	-	-	-					-	-	
Brook (BkT)	9-5	-	-		-							
Brook (BkN)	9-5	-	-		-							

Legend:

VH = IHNV, infectious hematopoietic necrosis virus
VP = IPNV, infectious pancreatic necrosis virus
VE = EIBS, erythrocytic inclusion body syndrome virus
BK = bacterial kidney disease agent, Renibacterium salmoninarum
BR = enteric redmouth bacterium, Yersinia ruckeri
BC = bacterial coldwater disease, Cytophaga psychrophila or Flexibacter
BF = bacterial furunculosis, Aeromonas salmonicida
PW = whirling disease agent, Myxobolus (Myxosoma) cerebralis
PX = PKX, agent of PKD, proliferative kidney disease
PC = Ceratomyxa shasta, agent of ceratomyxosis
PI = infestation by Ichthyophthirius multifilis

+ = positive
- = negative

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Adult kokanee from Moose Creek were thoroughly tested for bacterial kidney disease (BKD) again this year, but no BKD was diagnosed and all the eggs were retained.

PUBLIC RELATIONS

Approximately 2,000 people visited the hatchery during the year. Numerous elementary school tours were given in the spring, and several tours were given in the fall at the Moose Creek kokanee trap to Ashton elementary students who are studying the kokanee life cycle. An attractive visitor information display was constructed to answer questions about the hatchery, fishing and hunting regulations, and various Idaho Department of Fish and Game (IDFG) policies. The 2-ton fish truck was used in the Ashton Fourth of July parade to represent the hatchery in the community.

Fishing was allowed in the hatchery settling pond for kids 12 and under on Free Fishing Day. The forest service sponsored a fishing clinic at the Warm River campground, and after attending the clinic, youngsters proceeded to the hatchery pond to try their luck. Four forest service personnel assisted hatchery personnel in showing the kids how to fish, and a 100% success rate was achieved for the 75 participants. The average size fish caught was three pounds, while the largest was a 7.5 pound brown trout.

SPECIAL PROJECTS

Reward Tag Program

A reward tag program was initiated at Warm River and Beaver Creek to evaluate catchable trout returns to the creel. A number of catchables from each of these plants were fitted with a jaw tag, and an attractive fishing cap was given to fishermen who returned their tag. This information has resulted in maintaining the Warm River catchable plants and cutting back the Beaver Creek plants to allow maximum utilization of our catchables.

Kokanee

For the fourth consecutive year, Ashton Hatchery personnel operated a kokanee trap on Moose Creek, a tributary to the North (Henrys) Fork Snake River. The trap was located downstream from Big Springs Road, approximately 4 miles from Mack's Inn.

Trapping began on August 10 and continued through September 5 (Figure 1). Only 165 kokanee were trapped this year, as compared to 341 last year. Island Park Reservoir kokanee populations were down, and, consequently, those fish that

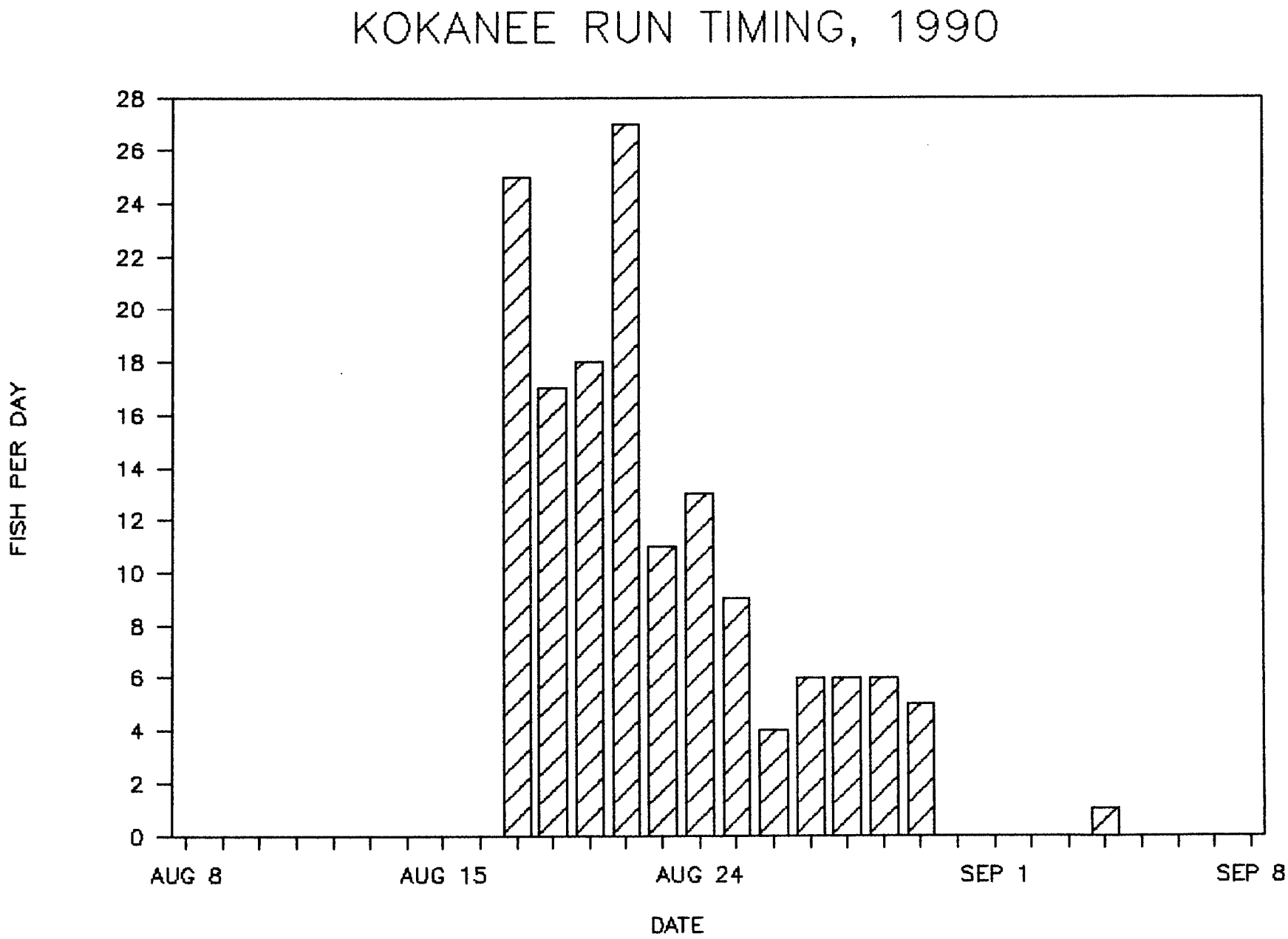

Figure 1. Kokanee trapped at Moose Creek, Island Park Reservoir.

returned to Moose Creek were very large. Length frequency (total length) of trapped fish ranged from 12.5 inches (317.5 mm) to 24.5 inches (622.3 mm). Mean total length of females trapped was 18.1 inches (461 mm), while mean total lengths of males were slightly larger at 18.5 inches (470 mm).

Spawning operations began on August 22 and continued until September 4, with 50 females spawned for 64,394 green eggs (Table 6). Spawning occurred on an every-other-day basis because of the loss of some over-ripe eggs when spawned two times per week last year. Because of the poor kokanee run in Moose Creek, an additional 257,646 green and eyed kokanee eggs were received from Deadwood Reservoir to help meet production goals.

One-half of the kokanee fingerlings from the 1989 Brood Year were released in Moose Creek at the trap site and the other half released at the West End boat dock in Island Park Reservoir. A morphaline drip was used seven days prior to release and seven days after to ensure that these fish would imprint on Moose Creek.

Fingerling releases occurred in late June to coincide with zooplankton blooms in Island Park Reservoir.

Brook Trout

All Temiscamie strain brook trout received an adipose-clip for both strain and year class identification. To ensure desired imprinting on the Henrys Lake fish ladder, these fish were also treated with a morphaline drip for four days prior to release and four days after release.

Cutthroat

A total of 125,000 cutthroat were marked with an adipose clip prior to their release in the Teton River and its tributaries. In addition, 25,000 cutthroat were marked with an adipose fin clip and released in Spring Hollow. This work was done as part of a research project conducted by Department personnel to evaluate survival and contribution to the fishery of hatchery-raised cutthroat trout, and to evaluate stocking site suitability. Another 50,100 cutthroat were marked with an adipose fin clip and released in the Henrys Fork near Beaver Dick campground to evaluate their survival and contribution to this fishery.

Grayling

Grayling experienced fair survival at Ashton this year. Eggs arrived unpicked and started hatching within a few days. Pantyhose was placed over the tailscreen to keep grayling from slipping through the tailscreen holes. During

Table 6. Results of kokanee spawning operations at Moose Creek, 1990.

Date	Females Spawned	Eggs Collected	Average Fecundity	Percent Eve-up
8-22-90	6	7,525	1,254	100.0
8-24-90	10	13,775	1,377	66.7
8-27-90	12	16,111	1,343	93.7
8-29-90	10	13,080	1,308	80.0
8-31-90	5	6,670	1,352	78.6
9-4-90	7	7,143	1,020	67.1
Total	50	64,394	1,288	81.4

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the night of June 27, the pantyhose plugged with fish waste and about 25% of the grayling were lost at 9,000/pound. Possible inventory errors, cannibalism, and unseen mortality also could have resulted in the 20.6% survival. (Cannibalism was observed when the grayling experienced a large size difference after a couple months on feed.)

The mean monthly length increase was 0.37 inches, while the conversion was 1.35:1 (Table 7). Kindschi and Barrows (1989) reported that grayling fed Bio-Kyowa during the first 14 days of their test had a survival rate of 81%. Grayling were fed Bio-Kyowa B-400 fry feed for the first three weeks at Ashton, then switched to Bio-Diet semi-moist starter feed. This diet combination doubled grayling survival this year and will be used again next year.

Atlantic Salmon

A total of 29,822 Atlantic salmon eggs were received from Grand Lake Stream Hatchery in Maine on February 17, 1989 and reared at Ashton Hatchery for 16 months before being stocked in two reservoirs in south-central Idaho. Deadwood Reservoir and Bull Trout Lake both received 9,931 7-inch fish (1,300 pounds) in late June. Fall gill net samples have shown these fish to be doing very well. Additional shipments of Atlantic salmon eggs will be received so that Idaho's Atlantic salmon program can be continued.

Golden Trout

Golden trout are being reared at Ashton Hatchery primarily in an attempt to establish an Idaho spawning population at Baker Lake, and also for stocking several mountain lakes. A total of 654 6-inch fish from the 1989 Brood Year were planted in Baker Lake and another 349 of these fish were hauled to Cleveland Lake in Region 4. A total of 17,790 goldens from the 1990 Brood Year were planted in mountain lakes (Table 2), and 700 goldens from Sylvan Lake, Montana (1990) are on hand and will be stocked in Baker Lake in the spring of 1991. The mean monthly length increase for golden trout was .30, while the average conversion was 1.52:1.

Broodstock Hauling

Ashton hatchery personnel were involved in the mid-winter transport of large rainbow trout broodstock culls from Ennis, Montana. Ennis National Fish Hatchery is primarily an egg-taking facility, and excess spawners were hauled to lakes and rivers in Idaho. The majority of these fish were between 5 and 15 pounds, and last year, 1,185 fish (9,463 pounds) were transported to regions 4, 5, and 6 by Ashton personnel (Table 3). Television coverage was very favorable, and several trophy ice fisheries were created. In addition, hatchery personnel

Table 7. Comparative growth rates and feed conversions for all species reared at Ashton Hatchery, 1989-90.

Species	Average monthly lenqth increase	Average conversion
Rainbow (Wyoming)	0.59	1.13
Rainbow (RA9)	0.58	0.94
Atlantic Salmon	0.39	0.81
Golden (Wyoming)	0.30	1.52
Brook (Nat)	0.40	0.86
Brook (Tent)	0.43	0.91
Brown (Wyoming)	0.39	0.81
Kamloops (K1)	0.31	0.76
Golden (Montana)	0.28	1.63
Grayling	0.37	1.35
Kokanee	0.34	1.01
Cutthroat	0.31	0.98

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hauled 12,000 catchables (4,374 pounds) from Ennis to Island Park Reservoir in late October.

Feed Test

A feed test comparing Clear Springs dry feed with Bio-Products soft-moist feed was conducted. Kamloops trout were split into two vats and one vat of fish were fed Clear Springs and the other fed Bio-Products. Water flows and densities were equal, and belt feeders were filled equally and used to eliminate any feeding biases. Pound counts were taken every two weeks and mortalities recorded daily (Table 8).

Test results showed Clear Springs dry feed to be much more cost-effective, with lower mortalities, while maintaining comparable conversions and growth rates (Table 9). Other rainbow strains could be started on dry feeds. However, soft-moist feeds are still favored for specialty species at Ashton Hatchery.

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Table 8. Bi-monthly pound counts and mortalities of feed kamloops test.

Date	Vat 6 #/lb	Clear mortality	Vat 7 #/lb	Bio Products mortality
3-1-90	2.088		2,009	
4-2-90	714	1,407	737	1,684
5-1-90	449	338	409	327
5-14-90	328		338	
6-1-90	180	60	189	109
6-5-90		47		48
Totals		1,852		2,168

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Table 9. Feed fed, cost, and conversions of kamloops feed test.

Month		Vat 6 Clear Springs	Vat 7 BioProducts
March	lbs.	28.6	28.6
	cost	$9.35	$23.40
April	lbs.	52.0	52.0
	cost	$17.00	$35.46
May	lbs.	121.5	124.0
	cost	$39.73	$59.15
June	lbs.	14.0	14.0
	cost	$4.58	$6.68
Total	feed	216.0	218.6
Gain (lbs.)		327.0	323.0
Conversion		.66:1	.68:1
	cost	$70.66	$124.69
	shipping	$26.65	$44.38
Total	cost	$97.31	$169.07

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ACKNOWLEDGEMENTS

Ashton hatchery personnel wish to thank Rick Lowell and the crew at Deadwood Reservoir for taking the 258,000 kokanee eggs that were shipped to Ashton. Special thanks to Steve Elie and regional personnel for their assistance during the WINTER broodstock planting.

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